

WHAT I CLAIM IS:

1. A method of establishing an electrical connection between at least one connecting piece (9) of a workpiece (11) and at least one wire (6) comprising:

- preparing the end of the at least one wire (6);

- positioning the prepared end of the wire (6) on the connecting piece (9); and

- welding the prepared end to the connecting piece (6) by laser radiation.

2. The method of claim 1 wherein the preparation of the end of the at least one wire (6) comprises attaching thereto a contact piece (1).

3. The method of claim 2 wherein the contact piece (1) is pressed onto the wire end.

4. The method of claim 2 wherein the contact piece (1) is plugged onto the connecting piece (9) for the positioning.

5. The method of claim 1 wherein the dimensions of the contact

piece (1) are chosen so that the contact piece (1) is prevented from sliding off the connecting piece (9).

6. The method of claim 1 wherein, prior to the laser welding, the positioning of the prepared end of the wire (6) on the connecting piece (9) is monitored.

7. The method of claim 1 wherein each workpiece (11) has at least two connecting pieces (9) and one wire (6) is connected to each connecting piece (9) through a contact piece (1) at the end of wire (6).

8. The method of claim 7 wherein the connection of the at least two wires (6) to the at least two connecting pieces (9) is performed simultaneously.

9. The method of claim 7 wherein the wires (6) are arranged parallel to the line of alignment of the at least two connecting pieces (9) and at least one of the contact pieces (1) is bent so that the wires (6) extend parallel adjacent each other after the positioning of the contact pieces (1) on the connecting pieces (9).

10. The method of claim 7 wherein, prior to laser welding, the assignment of the wires (6) to the connecting pieces (9) is monitored.

11. The method of claim 2 including the additional step of encapsulating the workpiece (11) after the laser welding.
12. The method of claim 2 wherein all the steps are performed by computer-control in a fully automatic manner.
13. A contact piece comprising a first portion (3) for establishing a connection to a wire (6) and a second portion (5) shaped so that said second portion (5) can be placed onto a connecting piece (9), wherein the first portion (3) is connected to the second portion (5) via a flexible web (7) so that the second portion (5) can be bent perpendicularly to its center axis out of the line of alignment with the wire (6).
14. The contact piece of claim 13 wherein it is adapted to be connected to the wire (6) via a crimp connection.
15. The contact piece of claim 13 wherein the second portion (5) is bent in a sleeve-like manner so that it can be plugged onto a connecting piece (9).
16. The contact piece of claim 15 wherein the sleeve opening of the second portion (5) has a round cross-section.
17. The contact piece of claim 15 wherein the sleeve opening of the second portion (5) has a polygonal cross-section.

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18. The contact piece of claim 13 wherein the center axis of the sleeve-like second portion (5) is perpendicular to the alignment of an end of a wire (6) inserted into the first portion.
19. The contact piece of claim 15 wherein the dimensions of the sleeve-like portion (5) are adapted to the connecting piece (9) of a workpiece (11).
20. The contact piece of claim 13 wherein the contact piece (19) is bent out of a planar basic form.
21. The contact piece of claim 13 wherein the contact piece (1) consists of a member of the group consisting of brass, copper and copper-beryllium alloy.
22. An apparatus for carrying out the method of claim 1, comprising:  
  
a component inserting station (24) for positioning prepared wires (6) on the connecting pieces (9) of workpieces (11),  
a laser welding station (28) for welding the ends of the prepared wires (6) to connecting pieces (9), and a transport system (22) for conveying the workpieces (11).
23. An apparatus of claim 22 wherein the component inserting

station (24) is preceded by a preparation station for preparing the wires (6) by attaching contact pieces (1).

24. An apparatus 22 wherein a potting station (30) is additionally provided for potting the workpieces (11) after the laser welding.

25. An apparatus of claim 22 wherein between the component inserting station (24) and the laser welding station (28), a station for component insertion monitoring (26) is also provided and/or following the potting station (30), a station for production control (32) is provided.

26. An apparatus of claim 22 comprising a component withdrawal station (36).

27. An apparatus of claim 22 comprising a control means for fully automatic control of the apparatus.

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